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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/055,186  | 01/23/2002  | Peter J. Schiller    | 14143               | 8462             |
| 25763   | 7590        | 04/22/2003           |                     |                  |
| DORSEY & WHITNEY LLP<br>INTELLECTUAL PROPERTY DEPARTMENT<br>50 SOUTH SIXTH STREET<br>MINNEAPOLIS, MN 55402-1498 |             |                      | EXAMINER            |                  |
|   |             |                      | SWARTHOUT, BRENT    |                  |
|   |             | ART UNIT             | PAPER NUMBER        |                  |
|   |             | 2632                 | 3                   |                  |
| DATE MAILED: 04/22/2003   |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

|                 |                   |              |          |
|-----------------|-------------------|--------------|----------|
| Application No. | 101055,186        | Applicant(s) | Schiller |
| Examiner        | Brent A Swarthout | Art Unit     | 2632     |
|                 |                   |              |          |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 3-1-02.
- 2a)  This action is FINAL.      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.
- 4)  Claim(s) 1-40 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) 16-22 is/are allowed.
- 6)  Claim(s) 1-4, 13-15, 23-26 & 35-40 is/are rejected.
- 7)  Claim(s) 5-12, 27-34 is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a)  The translation of the foreign language provisional application has been received.
- 15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.      6)  Other: \_\_\_\_\_

**DETAILED ACTION**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasanami et al. in view of Falangas and Triad Sentinel Article.

Kasanami discloses a gyroscopic device using piezoelectric elements 1 and opposing piezoelectric element 18 with electrodes 20/22 for vehicle navigation (col. 1).

Falangas teaches that a gyro 62 with piezoelectric elements (cols. 5-8) can be used to provide directional 60 and attitude 66 indications.

Triad teaches use of gyro means to provide backup display of attitude, direction and turn coordinate data.

It would have been obvious to use a gyroscopic device as taught by Kasanami to indicate attitude, direction and turn data, since Falangas teaches desirability of using piezoelectric gyro to indicate attitude and direction data, and Triad teaches desirability of using a gyro to provide backup flight data when a primary display fails.

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Regarding claims 2-3, compensation for sensors is well known in the gyroscopic art to provide more accurate signals, and use of a single piezo sheet would have been obvious in order to simplify application of plural piezo elements.

Regarding claims 13-14, Triad teaches switching to a backup battery source, when primary power fails.

Regarding claim 15, Falangas teaches converting means 42, 38 (Fig. 3).

2. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triad Sentinel Article.

Triad teaches independent gyro based backup navigation instruments, which obviously would have replaced conventional navigation instruments, which failed.

3. Claims 24-26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triad Sentinel Article in view of Kasanami et al. and Falangas.

Kasanami teaches desirability of using piezo electric gyro sensors to find rotation rate data, and Falangas teaches the desirability of using piezo gyro sensors for attitude and direction data.

It would have been obvious to use piezo sensors to generate the gyro data in Triad for the same reasons as given above in Paragraph No. 1.

4. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kasanami et al. in view of Burdess.

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Kasanami discloses use of gyro with piezoelectric material for use in vehicle navigation, except for oval shape.

Burdess teaches placing piezoelectric transducers in a cup-shape in order to detect accurate rate-of-turn data (col. 1, lines 58-68).

It would have been obvious to use an oval shape for sensors as taught by Burdess in conjunction with piezo sensors as disclosed by Kasanami, in order to obtain accurate rate-of-turn measurements.

5. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasanami et al.

Kasanami discloses a gyroscopic navigation system as set forth above.

Choosing to display the sensed data or place sensors on a chip would have been <sup>obvious, so as to be</sup> easily mounted in a small area, and so that a user could have viewed results.

Regarding claims 38-39, Kasanami teaches electrode and piezoelectric layers (col. 5).

6. Claims 16-22 are allowed.

7. Claims 5-12 and 27-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nakamura (799),

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Varnham (321), Wirt and Varnham et al. (867) disclose piezoelectric sensor devices.

9. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kasanami et al and Triad Sentinel Article.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent Swarthiest whose telephone number is (703) 305-4383. The examiner can normally be reached on M-F from 6:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu, can be reached on (703) 308-6730. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Brent Swarthout  
Typist April Cheeves  
Art Unit 2632

BS/ayc

April 15, 2003

*Brent Swarthout*  
BRENT A. SWARTHOUT  
PRIMARY EXAMINER